

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-3 (Canceled)

4. (Original) A zoom lens system comprising, in order from an object side of said zoom lens system, a first lens group having negative refracting power, a second lens group having positive refractive power, a third lens group having negative refracting power, a fourth lens group having positive refracting power and a fifth lens group having positive refracting power, wherein during zooming from a wide-angle end to a telephoto end of said zoom lens system, a space between said first lens group and said second lens group, a space between said third lens group and said fourth lens group, and a space between said third lens group and said fifth lens group becomes narrow while a space between said second lens group and said third lens group, a space between said fourth lens group and an image-formation plane, and a space between said fifth lens group and said image-formation plane becomes wide, and focusing on a subject is carried out by movement of said fifth lens group.

5. (Original) A zoom lens system comprising, in order from an object side of said zoom lens system, a first lens group having negative refracting power, a second lens group having positive refractive power, a third lens group having negative refracting power, a fourth lens group having positive refracting power and a fifth lens group having positive refracting power, wherein upon movement of an object point, focusing is carried out with said fifth lens group, and conditions (1), (2), and (3) are satisfied:

$$-0.2 < \beta_v < 0.8 \quad \dots (1)$$

$$0.6 < \Delta L_5 / \Delta L_4 < 1.2 \quad \dots (2)$$

$$0.05 < D_{45} / f_5 < 0.15 \quad \dots (3)$$

where  $\beta_v$  is a magnification of said fifth lens group upon focused on an infinite object point at a wide-angle end of said zoom lens system,  $\Delta L_4$  is an amount of movement of said fourth lens group from said wide-angle end to a telephoto end of said zoom lens system upon focused on an infinite object point,  $\Delta L_5$  is an amount of movement of said fifth lens group from said wide-angle end to said telephoto end upon focused on an infinite object point,  $D_{45}$  is an air space on an optical axis of said zoom lens system between said fourth lens group and said fifth lens group upon focused on an infinite object point at said telephoto end, and  $f_5$  is a focal length of said fifth lens group.

6. (Previously Presented) The zoom lens system according to claim 4 or 5, wherein said fifth lens group comprises one positive lens component having an aspherical surface.

7. (Previously Presented) The zoom lens system according to claim 4 or 5, wherein said fifth lens group comprises a positive lens component having a shape factor complying with the following condition (4):

$$-2 < (R_{51} + R_{52}) / (R_{51} - R_{52}) < 0.2 \quad \dots (4)$$

where  $R_{51}$  is a radius of curvature of a surface in said fifth lens group which is located nearest an object side thereof, and  $R_{52}$  is a radius of curvature of a surface which is located nearest an image side thereof in said fifth lens group.

Claims 8-20 (Cancelled)

21. (Previously Presented) A zoom lens system, which comprises, in order from an object side thereof, a first lens group having negative refracting power, a second lens group having positive refracting power, a third lens group having negative refracting power, a fourth lens group having positive refracting power and a fifth lens group having positive refracting power, wherein focusing on movement of an object point is carried out at the fifth lens group,

and the third lens group comprises two lens components including a cemented concave lens component and a negative single lens component, and satisfies the following condition (18):

$$0.1 < f_{31} / f_{32} < 1 \dots (18)$$

where  $f_{31}$  is a focal length of the concave lens element in the doublet component in the third lens group, and  $f_{32}$  is a focal length of the negative single lens component in the third lens group.

22. (Previously Presented) A zoom lens system, which comprises, in order from an object side thereof, a first lens group having negative refracting power, a second lens group having positive refracting power, a third lens group having negative refracting power, a fourth lens group having positive refracting power and a fifth lens group having positive refracting power, wherein focusing on movement of an object point is carried out at the fifth lens group and upon zooming from a wide-angle end to a telephoto end of the zoom lens system, the first lens group moves toward an image side of the zoom lens system at the telephoto end rather than at the wide-angle end, the second lens group move constantly toward the object side and the third lens group remains fixed.

23. (Previously Presented) A zoom lens system, which comprises, in order from an object side thereof, a first lens group having negative refracting power, a second lens group having positive refracting power, a third lens group having refracting power, a fourth lens group having positive refracting power and a fifth lens group having refracting power, wherein focusing on movement on an object point is carried out at the fifth lens group upon zooming from a wide-angle end to a telephoto end of the zoom lens system, the first lens group moves toward an image side of the zoom lens system at the telephoto end rather than at the wide-angle end, the second and fourth lens group move constantly toward the object side, the third lens group remains fixed and the second and fourth lens groups move together.

24. (Currently Amended) A zoom lens system, which comprises, in order from an object side thereof, at least a first lens group having negative refracting power, a second lens group having positive refracting power, a third lens group having negative refracting power and a

fourth lens group having positive refracting power, wherein the first lens group comprises a ~~negative lens component consisting of~~, in order from an object side thereof, a positive lens element, a negative meniscus lens element, and a negative lens component consisting of a negative lens element and a positive meniscus lens element, ~~all the negative lens element and the positive meniscus lens element being~~ cemented together, the zoom lens system has an aperture stop that remains fixed in the vicinity of the ~~second~~ third lens group and satisfies the following conditions:

$$-0.4 < f_1/f_w < -1.5 \quad \dots (5)$$

$$1.55 < n_1 < 1.8 \quad \dots (6)$$

$$1.3 < R_4/f_w < 3.5 \quad \dots (7)$$

$$37 < v_1 < 83 \quad \dots (8)$$

where  $f_1$  is a focal length of the first lens group,  $f_w$  is a focal length of the zoom lens system upon focusing on an object point at infinity at a wide-angle end of the zoom lens system,  $n_1$  is a refractive index of the positive lens element in the first lens group, which is located nearest to an object side thereof,  $R_4$  is a radius of curvature of a concave surface of the negative meniscus lens element in the first lens group, and  $v_1$  is an Abbe number of a medium of the positive lens element in the first lens group, which is located nearest to an object side thereof.

25. (Currently Amended) A zoom lens system, which comprises, in order from an object side thereof, at least a first lens group having negative refracting power, a second lens group having positive refracting power, a third lens group having negative refracting power and a fourth lens group having positive refracting power, wherein the first lens group comprises a ~~negative lens component consisting of~~, in order from an object side thereof, a positive lens element, a negative meniscus lens element, and a negative lens component consisting of a negative lens element and a positive meniscus lens element, ~~all the negative lens element and the positive meniscus lens element being~~ cemented together, has an aperture stop that moves together in with the second lens group and satisfies the following conditions:

$$-0.4 < f_1/f_w < -1.5 \quad \dots (5)$$

$$1.55 < n_1 < 1.8 \quad \dots (6)$$

$$1.3 < R_4/f_w < 3.5 \quad \dots (7)$$

$$37 < v_1 < 83 \quad \dots (8)$$

where  $f_1$  is a focal length of the first lens group,  $f_w$  is a focal length of the zoom lens system upon focusing on an object point at infinity at a wide-angle end of the zoom lens system,  $n_1$  is a refractive index of the positive lens element in the first lens group, which is located nearest to an object side thereof,  $R_4$  is a radius curvature of a concave surface of the negative meniscus lens element in the first lens group, and  $v_1$  is an Abbe number of a medium of the positive lens element in the first lens group, which is located nearest to an object side thereof.

26. (Currently Amended) A zoom lens system, which comprises, in order from an object side thereof, at least a first lens group that has negative refracting power and moves only in one direction upon zooming from a wide angle end to a telephoto end of the zoom lens system and vice versa, a second lens group having positive refracting power, a third lens group having negative refracting power and a fourth lens group having positive refracting power, wherein the first lens group comprises ~~a negative lens component consisting of~~, in order from an object side thereof, a positive lens element, a negative meniscus lens element, and a negative lens component consisting of a negative lens element and a positive meniscus lens element, the negative lens element and the positive meniscus lens element being connected together, and satisfies the following conditions:

$$-0.4 < f_1/f_w < -1.5 \quad \dots (5)$$

$$1.55 < n_1 < 1.8 \quad \dots (6)$$

$$1.3 < R_4/f_w < 3.5 \quad \dots (7)$$

$$37 < v_1 < 83 \quad \dots (10)$$

where  $f_1$  is a focal length of the first lens group,  $f_w$  is a focal length of the zoom lens system upon focusing on an object point at infinity at a wide-angle end of the zoom lens system,  $n_1$  is a refractive index of the positive lens element in the first lens group, which is located nearest to an object side thereof,  $R_4$  is a radius of curvature of a concave surface of the negative meniscus lens

element in the first lens group, and  $v_1$  is an Abbe number of a medium of the positive lens element in the first lens group, which is located nearest to an object side thereof.

27. (Currently Amended) A zoom lens system, which comprises, in order from an object side thereof, at least a first lens group that has negative refracting power, a second lens group having a positive refracting power, a third lens group having negative refracting power and a fourth lens group having positive refracting power, wherein the first lens group comprises a ~~negative lens component consisting of~~, in order from an object side thereof, a positive lens element, a negative meniscus lens element, and a negative lens component consisting of a negative lens element and a positive meniscus lens element, the negative lens element and the positive meniscus lens element being cemented together, and satisfies the following conditions:

$$-0.4 < f_1/f_w < -1.5 \quad \dots (5)$$

$$1.55 < n_1 < 1.8 \quad \dots (6)$$

$$[[1.3 < R_4/f_w < 3. \quad \dots (7')]]$$

$$\underline{1.3 < R_4/f_w < 3.5} \quad (7)$$

$$37 < v_1 < 83 \quad \dots (10)$$

where  $f_1$  is a focal length of the first lens group,  $f_w$  is a focal length of the zoom lens system upon focusing on an object point at infinity at a wide-angle end of the zoom lens system,  $n_1$  is a refractive index of the positive lens element in the first lens group, which is located nearest to an object side thereof,  $R_4$  is a radius of curvature of a concave surface of the negative meniscus lens element in the first lens group, and  $v_1$  is an Abbe number of a medium of the positive lens element in the first lens group, which is located nearest to an object side thereof.

28. (Currently Amended) A zoom lens system, which comprises, in order from an object side thereof, at least a first lens group that has negative refracting power, a second lens group having positive refracting power, a third lens group having negative refracting power and a fourth lens group having positive refracting power, wherein the first lens group comprises a ~~negative lens component consisting of~~, in order from an object side thereof, a positive lens

element, a negative meniscus lens element, and a negative lens component consisting of a negative lens element and a positive meniscus lens element, all the negative lens element and the positive meniscus lens element being cemented together, a plurality of fixed optical devices are located on an image side of the zoom system and the following conditions are satisfied:

$$-0.4 < f_1/f_w < -1.5 \quad \dots (5)$$

$$1.55 < n_1 < 1.8 \quad \dots (6)$$

$$1.3 < R_4/f_w < 3.5 \quad \dots (7)$$

$$37 < v_1 < 83 \quad \dots (8)$$

where  $f_1$  is a focal length of the first lens group,  $f_w$  is a focal length of the zoom lens system upon focusing on an object point at infinity at a wide-angle end of the zoom lens system,  $n_1$  is a refractive index of the positive lens element in the first lens group, which is located nearest to an object side thereof,  $R_4$  is a radius of curvature of a concave surface of the negative meniscus lens element in the first lens group, and  $v_1$  is an Abbe number of a medium of the positive lens element in the first lens group, which is located nearest to an object side thereof.

29. (Previously Presented) A zoom lens system, which comprises, in order from an object side thereof, a first lens group having a negative refracting power, a second lens group having positive refracting power, a third lens group having negative refracting power, a fourth lens group having positive refracting power and a fifth lens group having a positive refracting power, wherein focusing on movement of an object point is carried out at the fifth lens group, upon zooming from a wide-angle end to a telephoto end of the zoom lens system, the first lens group moves to an image side of the zoom lens system, and the first lens group satisfies the following condition:

$$0.15 < Hb_{\text{labs}}/f_{\text{labs}} < 0.9 \quad \dots (16)$$

where  $f_{\text{labs}}$  is an absolute value of a focal first lens group, and  $Hb_{\text{labs}}$  is an absolute value of a rear principle point position of the first lens group.

30. (Previously Presented) A zoom lens system, which comprises, in order from an object side thereof, a first lens group having a negative refracting power, a second lens group having positive refracting power, a third lens group having negative refracting power, a fourth lens group having positive refracting power and a fifth lens group having a positive refracting power, wherein focusing on movement of an object point is carried out at the fifth lens group, upon zooming from a wide-angle end to a telephoto end of the zoom lens system, the first lens group moves to an image side of the zoom lens system while the third lens group remains fixed, and the first lens group satisfies the following condition:

$$0.15 < Hb_{labs}/f_{labs} < 0.9 \quad \dots (16)$$

where  $f_{labs}$  is an absolute value of a focal first lens group, and  $Hb_{labs}$  is an absolute value of a rear principle point position of the first lens group.

31. (Previously Presented) A zoom lens system, which comprises, in order from an object side thereof, a first lens group having negative refracting power, a second lens group having positive refracting power, a third lens group having negative refracting power, a fourth lens group having positive refracting power, and a fifth lens group having a positive refracting power, wherein focusing on movement of an object point is carried out at the fifth lens group, upon zooming from a wide-angle end to a telephoto end of the zoom lens system, the first lens group moves to an image side of the zoom lens system, and the following condition is satisfied with the first and second lens groups:

$$0.7 \times 10^{-2} \text{ mm}^{-1} < Hb_{labs}/(f_{labs} \cdot f_2) < 6 \times 10^{-2} \text{ mm}^{-1} \quad \dots (17)$$

where  $f_{labs}$  is an absolute value of a focal length of the first lens group, and  $Hb_{labs}$  is an absolute value of a rear principle point position of the first lens group, and  $f_2$  is a focal length of the second lens group.

32. (Previously Presented) A zoom lens system, which comprises, in order from an object side thereof, a first lens group having negative refracting power, a second lens group having positive refracting power, a third lens group having negative refracting power, a fourth lens group having positive refracting power, and a fifth lens group having a positive refracting



power, wherein focusing on movement of an object point is carried out at the fifth lens group, and the following condition is satisfied with the respect to the first and second lens groups:

$$0.7 \times 10^{-2} \text{ mm}^{-1} < Hb_{\text{labs}} / (f_{\text{labs}} \cdot f_2) < 6 \times 10^{-2} \text{ mm}^{-1} \quad \dots (17')$$

where  $f_{\text{labs}}$  is an absolute value of a focal length of the first lens group,  $Hb_{\text{labs}}$  is an absolute value of a rear principle point position of the first lens group, and  $f_2$  is a focal length of the second lens group.

33. (Previously Presented) A zoom lens system, which comprises, in order from an object side thereof, a first lens group having negative refracting power, a second lens group having positive refracting power, a third lens group having negative refracting power, a fourth lens group having positive refracting power, and a fifth lens group having positive refracting power, wherein focusing on movement of an object point is carried out at the fifth lens group, upon zooming from a wide-angle end to a telephoto end of the zoom lens system, the first lens group moves toward an image side of the zoom lens system, and at least two of the following conditions (16), (17) and (18) are satisfied:

$$0.15 < Hb_{\text{labs}}/f_{\text{labs}} < 0.9 \quad \dots (16)$$

$$0.7 \times 10^{-2} \text{ mm}^{-1} < Hb_{\text{labs}} / (f_{\text{labs}} \cdot f_2) < 6 \times 10^{-2} \text{ mm}^{-1} \quad \dots (17)$$

$$0.1 < f_{31}/f_{32} < 1 \quad \dots (18)$$

where  $f_{\text{labs}}$  is an absolute value of a focal length of the first lens group,  $Hb_{\text{labs}}$  is an absolute value of a rear principle point position of the first lens group,  $f_{31}$  is a focal length of a concave lens element of a doublet component in the third lens group, and  $f_{32}$  is a focal length of a negative lens component in the third lens group.

34. (Previously Presented) A zoom lens system, which comprises, in order from an object side thereof, a first lens group having negative refracting power, a second lens group having positive refracting power, a third lens group having negative refracting power, a fourth lens group having positive refracting power, and a fifth lens group having positive refracting

power, wherein focusing on movement of an object point is carried out at the fifth lens group, and at least two of the following conditions (16), (17') and (18) are satisfied:

$$0.15 < Hb_{\text{labs}}/f_{\text{labs}} < 0.9 \quad \dots (16)$$

$$0.7 \times 10^{-2} \text{ mm}^{-1} < Hb_{\text{labs}} / (f_{\text{labs}} \cdot f_2) < 6 \times 10^{-2} \text{ mm}^{-1} \quad \dots (17')$$

$$0.1 < f_{31}/f_{32} < 1 \quad \dots (18)$$

where  $f_{\text{labs}}$  is an absolute value of a focal length of the first lens group,  $Hb_{\text{labs}}$  is an absolute value of a rear principle point position of the first lens group,  $f_{31}$  is a focal length of a concave lens element of a doublet component in the third lens group, and  $f_{32}$  is a focal length of a negative lens component in the third lens group.

35. (Cancel)

36. (Previously Presented) A zoom lens system, which comprises, in order from an object side thereof, a first lens group having negative refracting power, a second lens group having positive refracting power, a third lens group having negative refracting power, a fourth lens group having positive refracting power and a fifth lens group having positive refracting power, wherein focusing on movement of an object point is carried out at the fifth lens group, and a plurality of axially fixed optical devices are located in the rear of the fifth lens group.

37. (Previously Presented) The zoom lens system according to claim 36, wherein the plurality of axially fixed optical devices include at least a low-pass filter and an infrared cut filter.

38. (Previously Presented) The zoom lens system according to any one of claims 21 and 29-33, wherein upon zooming from the wide-angle end to the telephoto end, a spacing between the first and second lens groups and a spacing between the third and fourth lens groups become

narrow while a spacing between the second and third lens groups and a spacing between the fourth lens group and an image-formation plane become wide.

39. (Currently Amended) The zoom lens system according to any one of claims 21 and [[24]] 29-33, [[35,]] wherein upon zooming from the wide-angle end to the telephoto end, a spacing between the first and second lens groups and a spacing between the third and fourth lens groups become narrow while a spacing between the second and third lens groups and a spacing between the fourth lens group and an image-formation plane become wide, in which upon focusing from close range in an infinite direction, the fifth lens group moves toward the image side and upon focusing from an infinite direction in a close range direction, the fifth lens group moves the object side.

40. (New) A zoom lens system comprising, in order from an object side of the zoom lens system, at least a first lens group having negative refracting power, a second lens group having positive refracting power, a third lens group having negative refracting power and a fourth lens group having positive refracting power, wherein said first lens group comprises, in order from an object side thereof, a negative meniscus lens element, a negative lens element, and a negative lens component consisting of a positive lens element and a negative lens element that are cemented together, and satisfies conditions (14) and (15):

$$-4.0 < f_1/f_w < -1.5 \quad \dots (14)$$

$$1.3 < R_2/f_w < 3.5 \quad \dots (15)$$

where  $f_1$  is a focal length of said first lens group,  $f_w$  is a focal length of said zoom lens system at a wide-angle end thereof upon focused on an infinite object point, and  $R_2$  is a radius of curvature of a concave surface of said negative meniscus lens element in said first lens group.

41. (New) A zoom lens system comprising, in order from an object side of the zoom lens system, at least a first lens group having negative refracting power, a second lens group having positive refracting power, a third lens group having negative refracting power and a fourth lens group having positive refracting power, wherein said first lens group comprises in order from an object side thereof, a negative meniscus lens element, a negative lens element, and a negative lens component consisting of a positive lens element that are cemented together, further comprises at least one a spherical surface, and satisfies conditions (14) and (15):

$$-4.0 < f_1/f_w < -1.5 \quad \dots (14)$$

$$1.3 < R_2/f_w < 3.5 \quad \dots (15)$$

where  $f_1$  is a focal length of said first lens group,  $f_w$  is a focal length of said zoom lens system at a wide-angle end thereof upon focused on an infinite object point, and  $R_2$  is a radius of curvature of a concave surface of said negative meniscus lens element in said first lens group.

42. (New) A zoom lens system, which comprises, in order from an object side thereof, at least a first lens group having negative refracting power, a second lens group having positive refracting power, a third lens group having negative refracting power and a fourth lens group having positive refracting power, wherein the first lens group comprises, in order from an object side thereof, a positive lens element, a negative meniscus lens element, and a negative lens component consisting of a negative lens element and a positive meniscus lens element, the negative lens element and the positive meniscus lens element being cemented together, and satisfies the following conditions:

$$-0.4 < f_1/f_w < -1.5 \quad \dots (5)$$

$$1.55 < n_1 < 1.8 \quad \dots (6)$$

$$1.3 < R_4/f_w < 3.5 \quad \dots (7)$$

$$37 < v_1 < 83 \quad \dots (8)$$

$$0.15 < Hb_{labs} / f_{labs} < 0.9 \quad \dots (16)$$

where  $f_1$  is a focal length of the first lens group,  $f_w$  is a focal length of the zoom lens system upon focusing on an object point at infinity at a wide-angle end of the zoom lens system,  $n_1$  is a refractive index of the positive lens element in the first lens group, which is located nearest to an object side thereof,  $R_4$  is a radius of curvature of a concave surface of the negative meniscus lens element in the first lens group,  $v_1$  is an Abbe number of a medium of the positive lens element in the first lens group, which is located nearest to an object side thereof,  $f_{labs}$  is an absolute value of the focal length of the first lens group, and  $Hb_{labs}$  is an absolute value of a rear principle point position of the first lens group.

43. (New) A zoom lens system, which comprises, in order from an object side thereof, at least a first lens group having negative refracting power, a second lens group having positive refracting power, a third lens group having negative refracting power and a fourth lens group having positive refracting power, wherein the first lens group comprises, in order from an object side thereof, a positive lens element, a negative meniscus lens element, and a negative lens component consisting of a negative lens element and a positive meniscus lens element, the

negative lens element and the positive meniscus lens element being cemented together, and the following conditions (5), (6), (7) and (9) are satisfied,

$$-0.4 < f_1/f_w < -1.5 \quad \dots (5)$$

$$1.55 < n_1 < 1.8 \quad \dots (6)$$

$$1.3 < R_4/f_w < 3.5 \quad \dots (7)$$

$$37 < v_1 < 83 \quad \dots (9)$$

and the following condition (16) is satisfied with respect to the first and second lens groups:

$$0.7 \times 10^{-2} \text{ mm}^{-1} < Hb_{\text{labs}} / (f_{\text{labs}} \cdot f_2) < 6 \times 10^{-2} \text{ mm}^{-1} \quad \dots (17)$$

where  $f_1$  is a focal length of the first lens group,  $f_w$  is a focal length of the zoom lens system upon focusing on an object point at infinity at a wide-angle end of the zoom lens system,  $n_1$  is a refractive index of the positive lens element in the first lens group, which is located nearest to an object side thereof,  $R_4$  is a radius of curvature of a concave surface of the negative meniscus lens element in the first lens group,  $v_1$  is an Abbe number of a medium of the positive lens element in the first lens group, which is located nearest to an object side thereof,  $f_{\text{labs}}$  is an absolute value of the focal length of the first lens group,  $Hb_{\text{labs}}$  is an absolute value of a rear principle point position of the first lens group, and  $f_2$  is a focal length of the second lens group.

44. (New) A zoom lens system, which comprises, in order from an object side thereof, at least a first lens group having negative refracting power, a second lens group having positive refracting power, a third lens group having negative refracting power and a fourth lens group having positive refracting power, wherein the first lens group comprises, in order from an object side thereof, a positive lens element, a negative meniscus lens element, and a negative lens component consisting of a negative lens element and a positive meniscus lens element, the negative lens element and the positive meniscus lens element being cemented together, and satisfies the following conditions (5), (6), (7), (8), (16), (17) and (18)

$$-0.4 < f_1/f_w < -1.5 \quad \dots (5)$$

$$1.55 < n_1 < 1.8 \quad \dots (6)$$

$$1.3 < R_4/f_w < 3.5 \quad \dots (7)$$

$$37 < v_1 < 83 \quad \dots (8)$$

$$0.15 < Hb_{\text{labs}}/f_{\text{labs}} < 0.9 \quad \dots (16)$$

$$0.7 \times 10^{-2} \text{ mm}^{-1} < Hb_{\text{labs}}/(f_{\text{labs}} \cdot f_2) < 6 \times 10^{-2} \text{ mm}^{-1} \quad \dots (17)$$

$$0.1 < f_{31}/f_{32} < 1 \quad \dots (18)$$

where  $f_1$  is a focal length of the first lens group,  $f_w$  is a focal length of the zoom lens system upon focusing on an object point at infinity at a wide-angle end of the zoom lens system,  $n_1$  is a

refractive index of the positive lens element in the first lens group, which is located nearest to an object side thereof,  $R_4$  is a radius curvature of a concave surface of the negative meniscus lens element in the first lens group,  $v_1$  is an Abbe number of a medium of the positive lens element in the first lens group, which is located nearest to an object side thereof,  $f_{\text{labs}}$  is an absolute value of the focal length of the first lens group,  $Hb_{\text{labs}}$  is an absolute value of a rear principle point of the first lens group,  $f_2$  is a focal length of the second lens group,  $f_{31}$  is a focal length of a concave lens component in a doublet in the third lens group, and  $f_{32}$  is a focal length of a negative lens in the third lens group.